

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

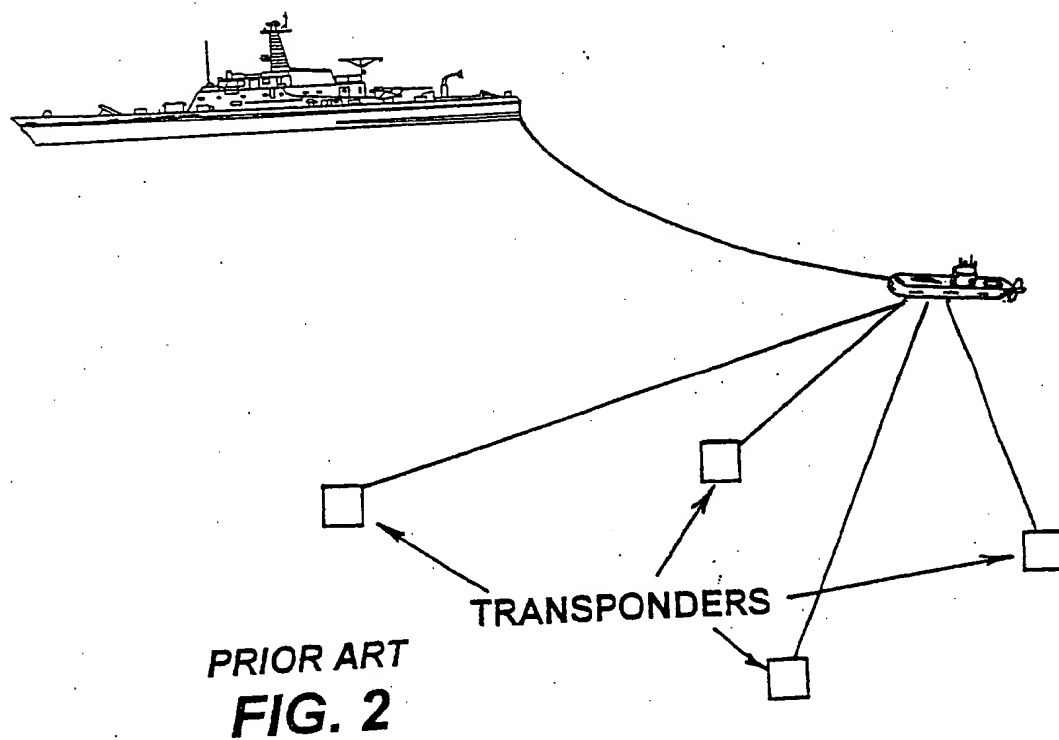
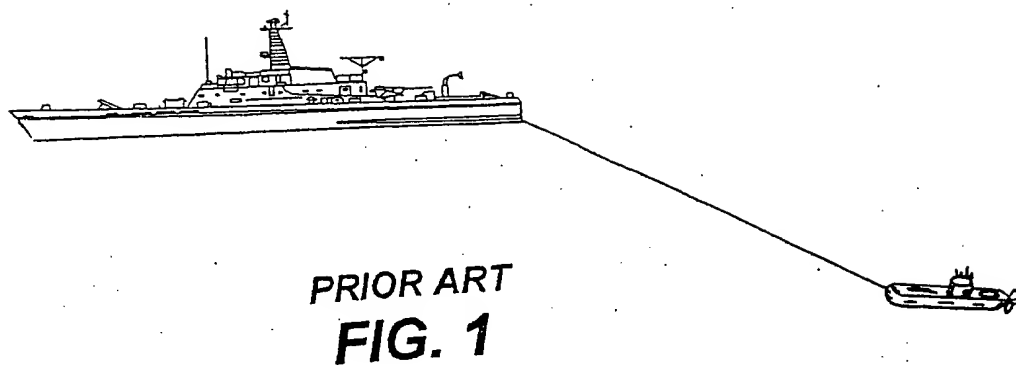
Defective images within this document are accurate representations of the original documents submitted by the applicant.

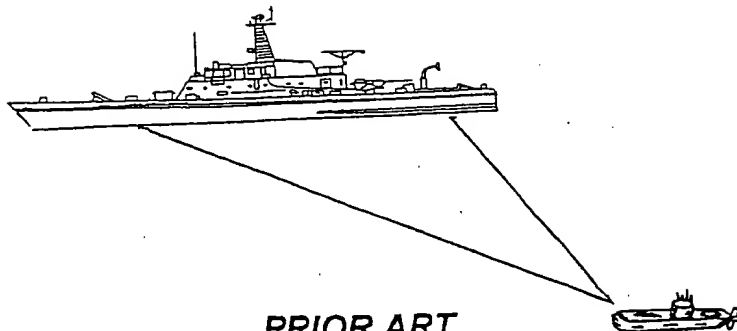
Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**





PRIOR ART
FIG. 3

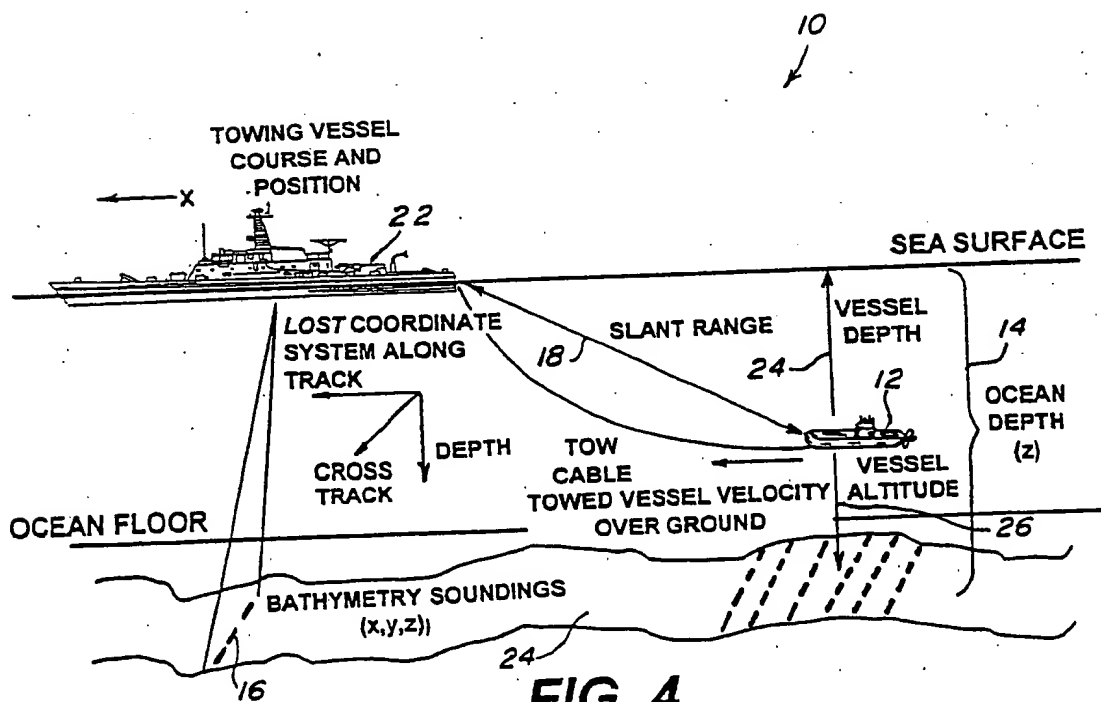
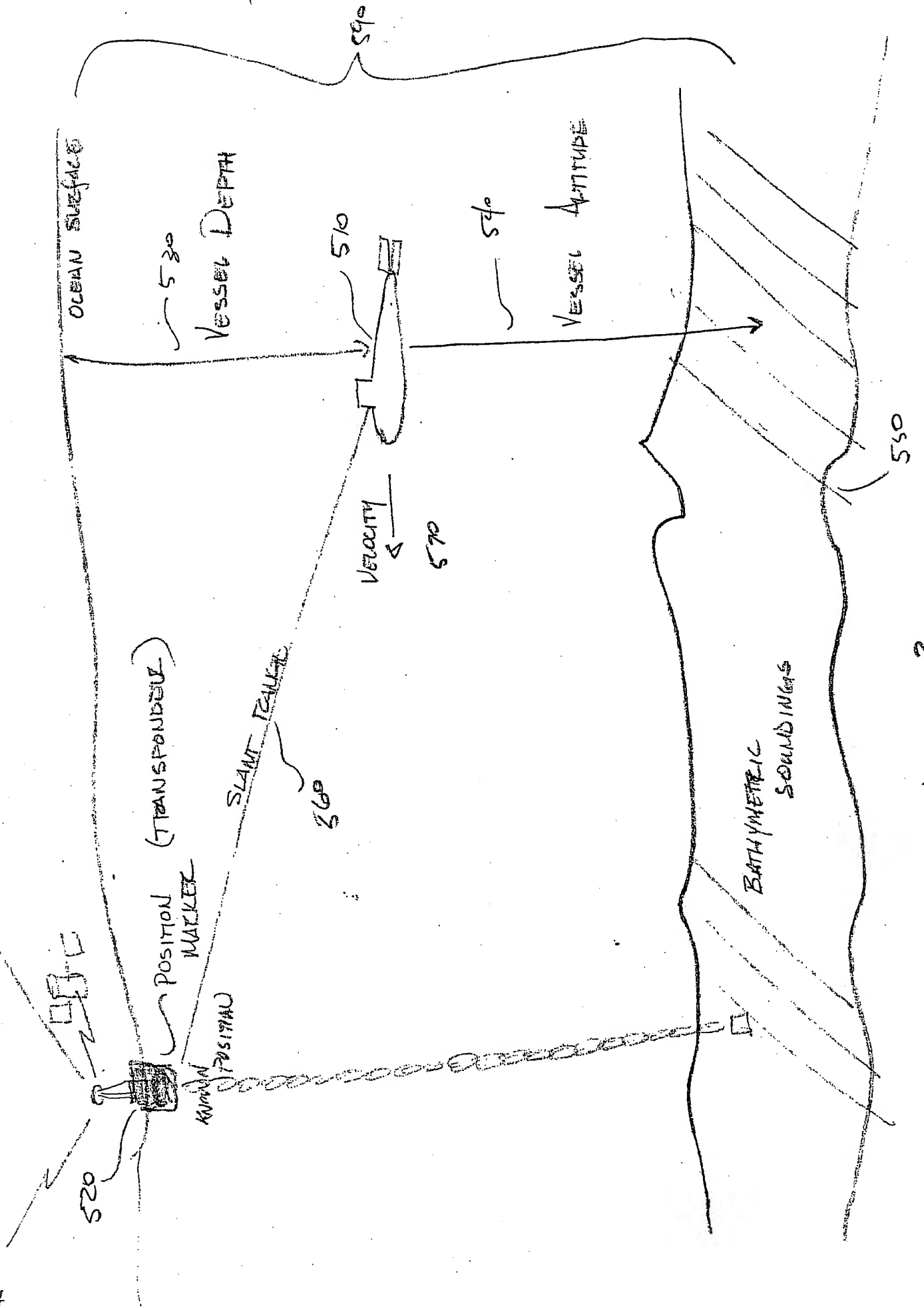


FIG. 4

PRIOR ART

21



2-10-19

EXAMPLE OF LOST 2 EMPLOYING MULTIPLE UUV'S

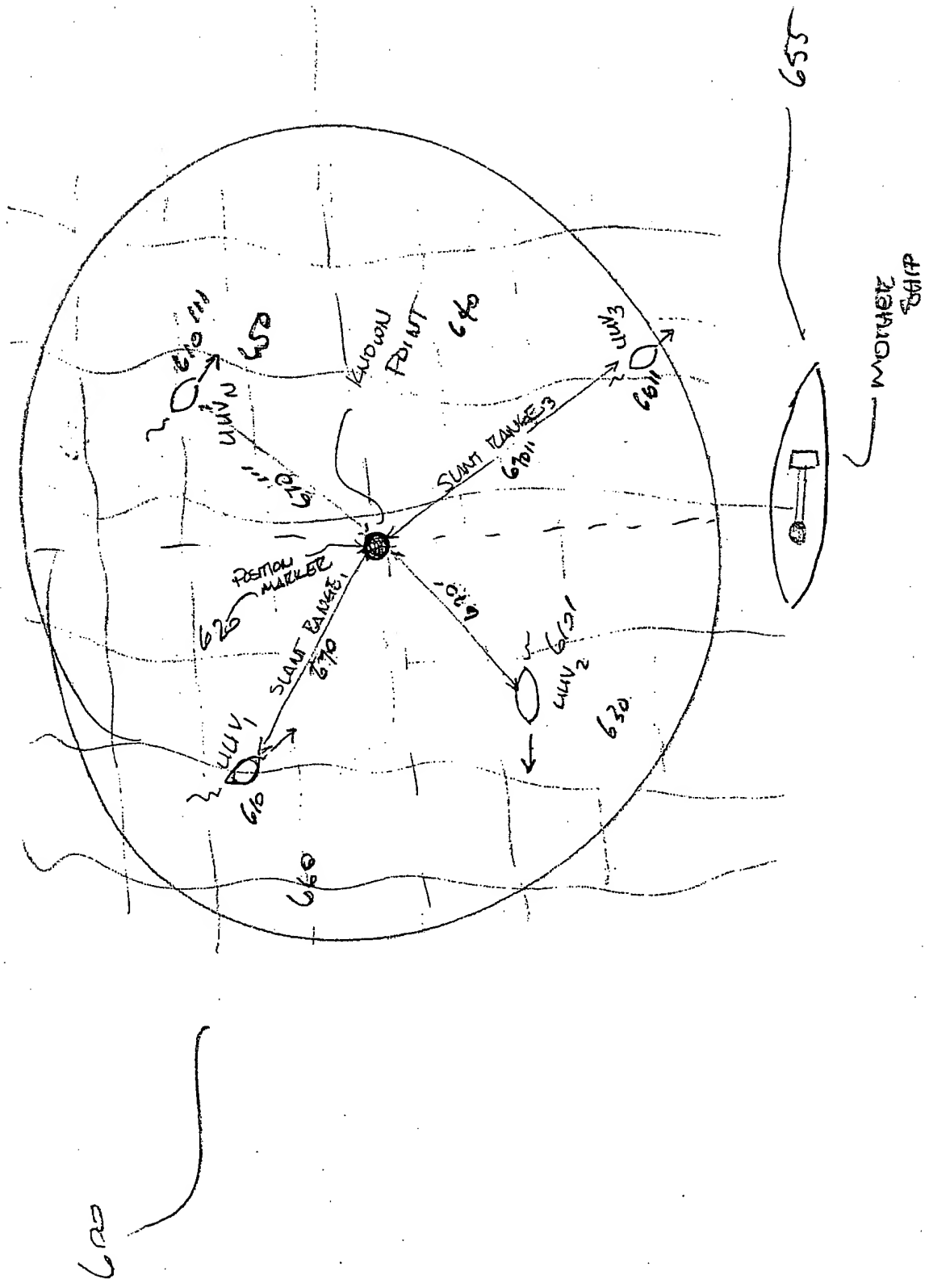
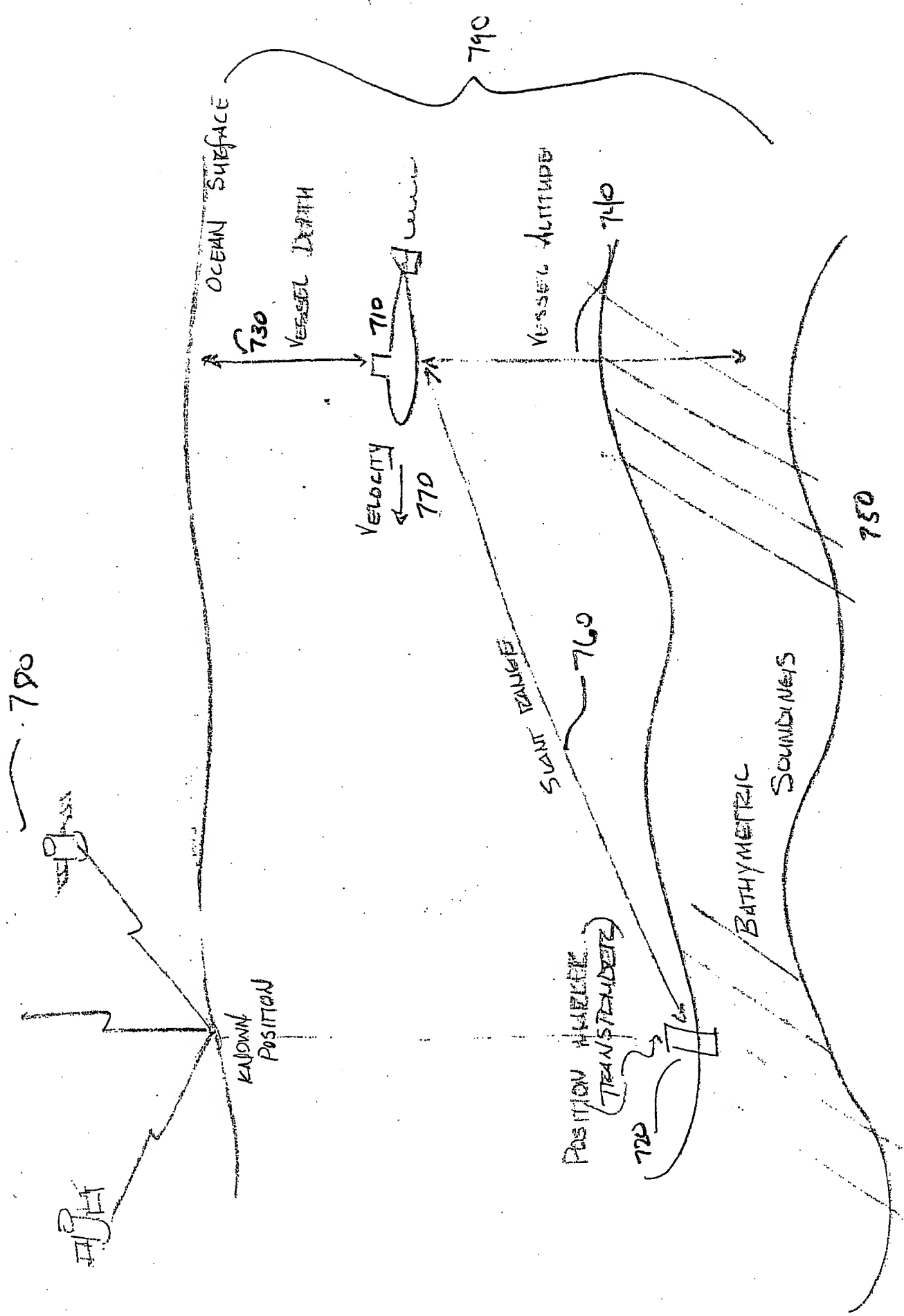
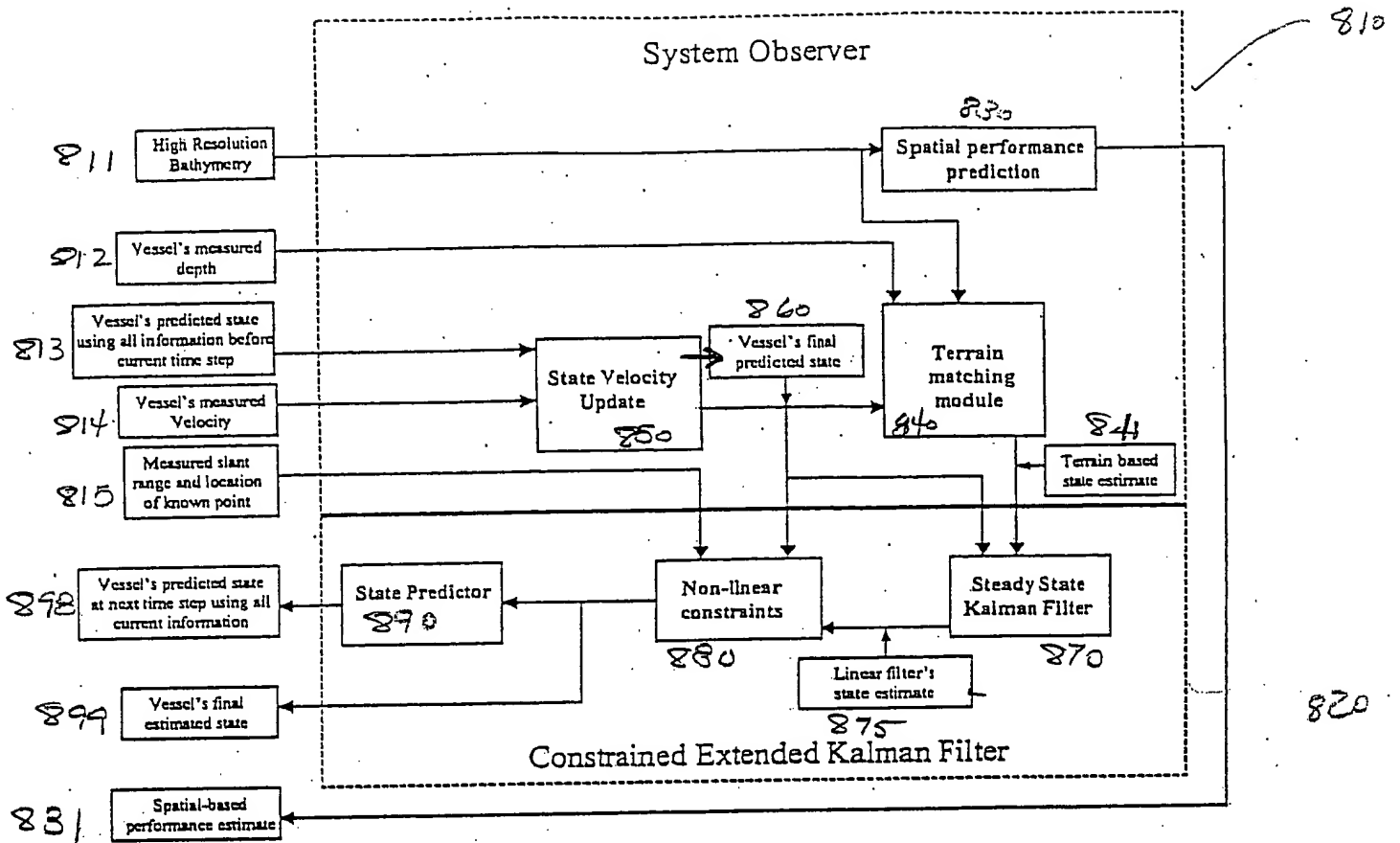


FIGURE 6



Lost - 2

FIGURE 7



Block diagram of the system showing the two primary subsystems

FIGURE 8

910

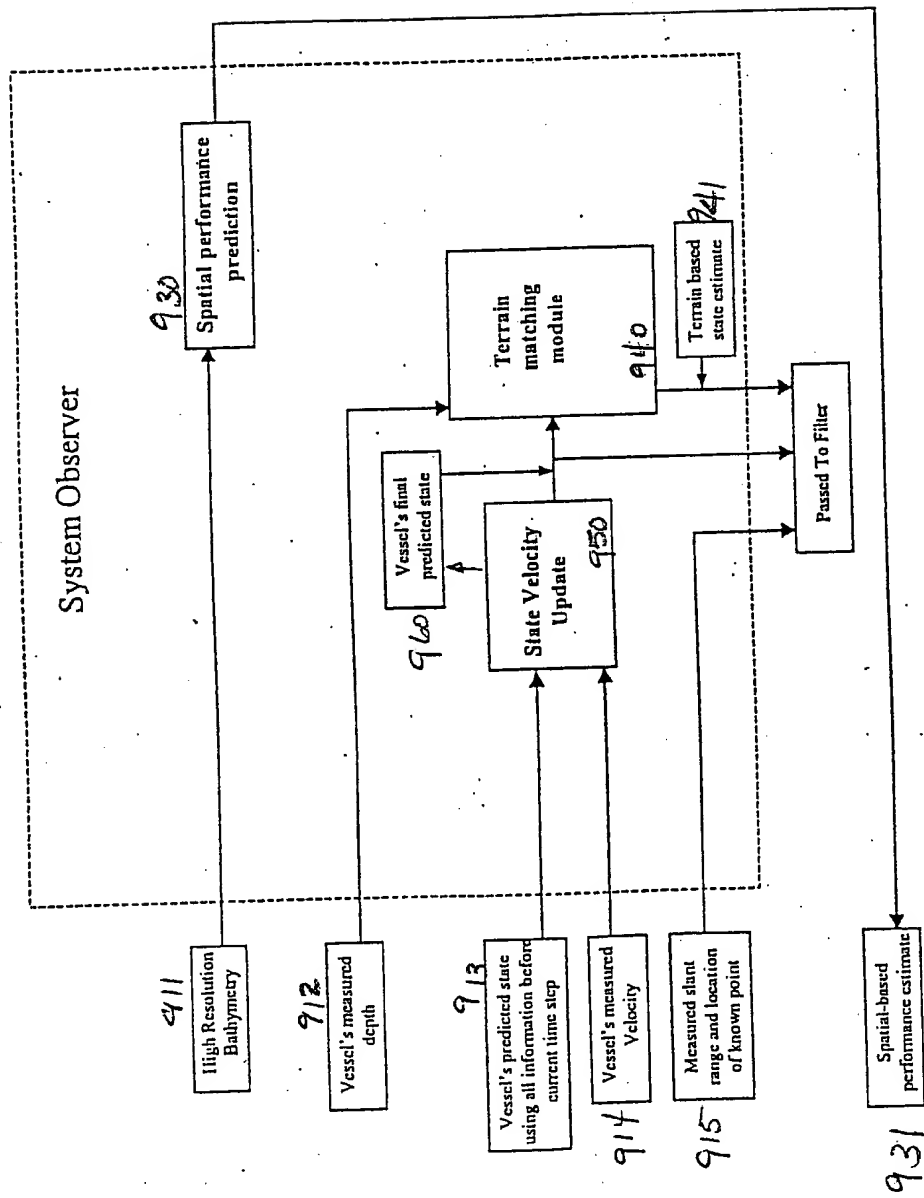
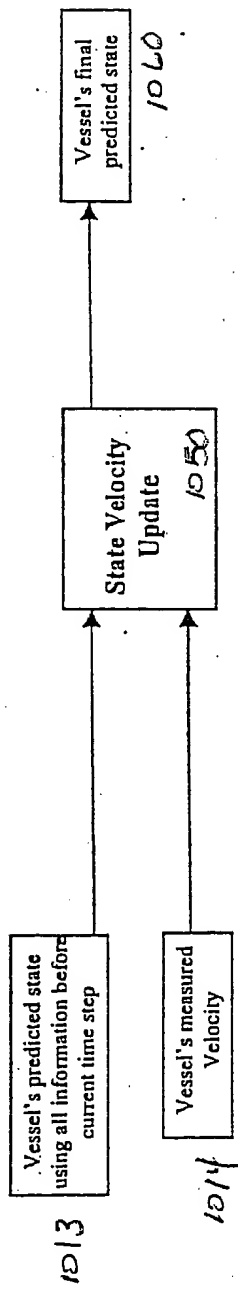


FIGURE 9

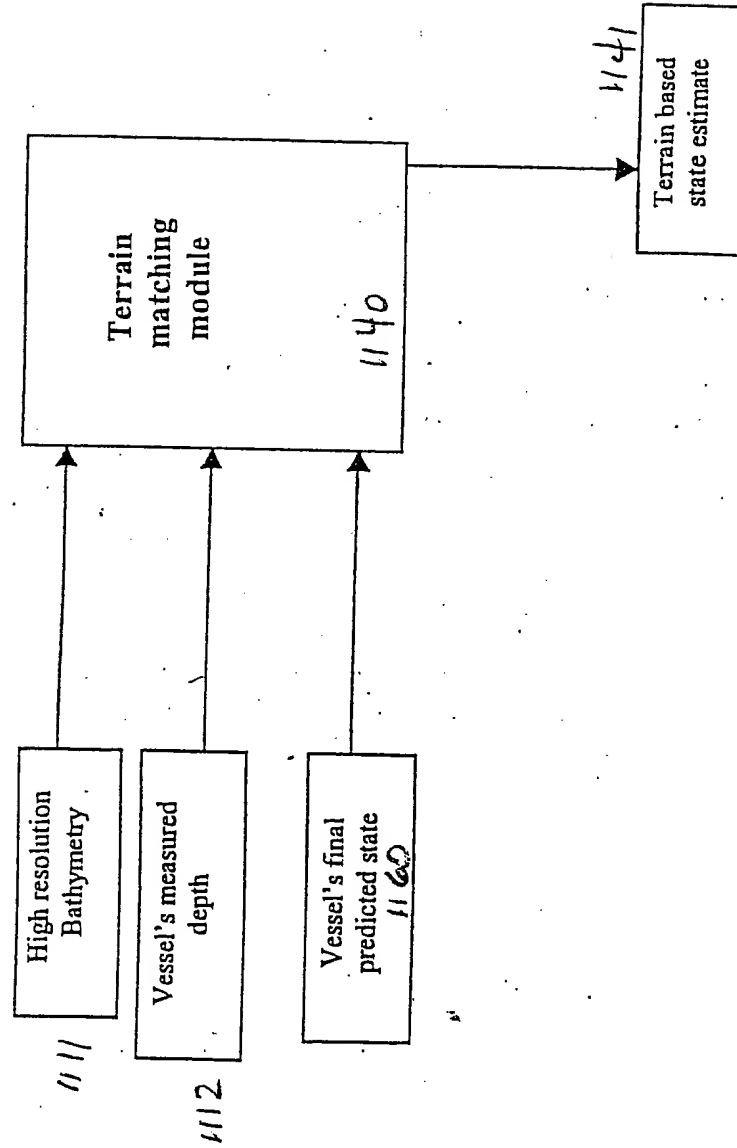
Block diagram of the system observer subsystem showing the signal flow

flow

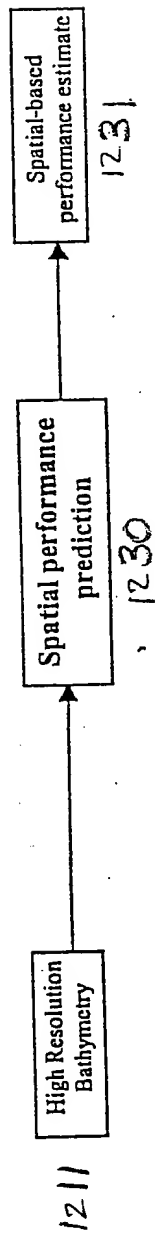


-Input/Output diagram for the state velocity update

FIGURE 10

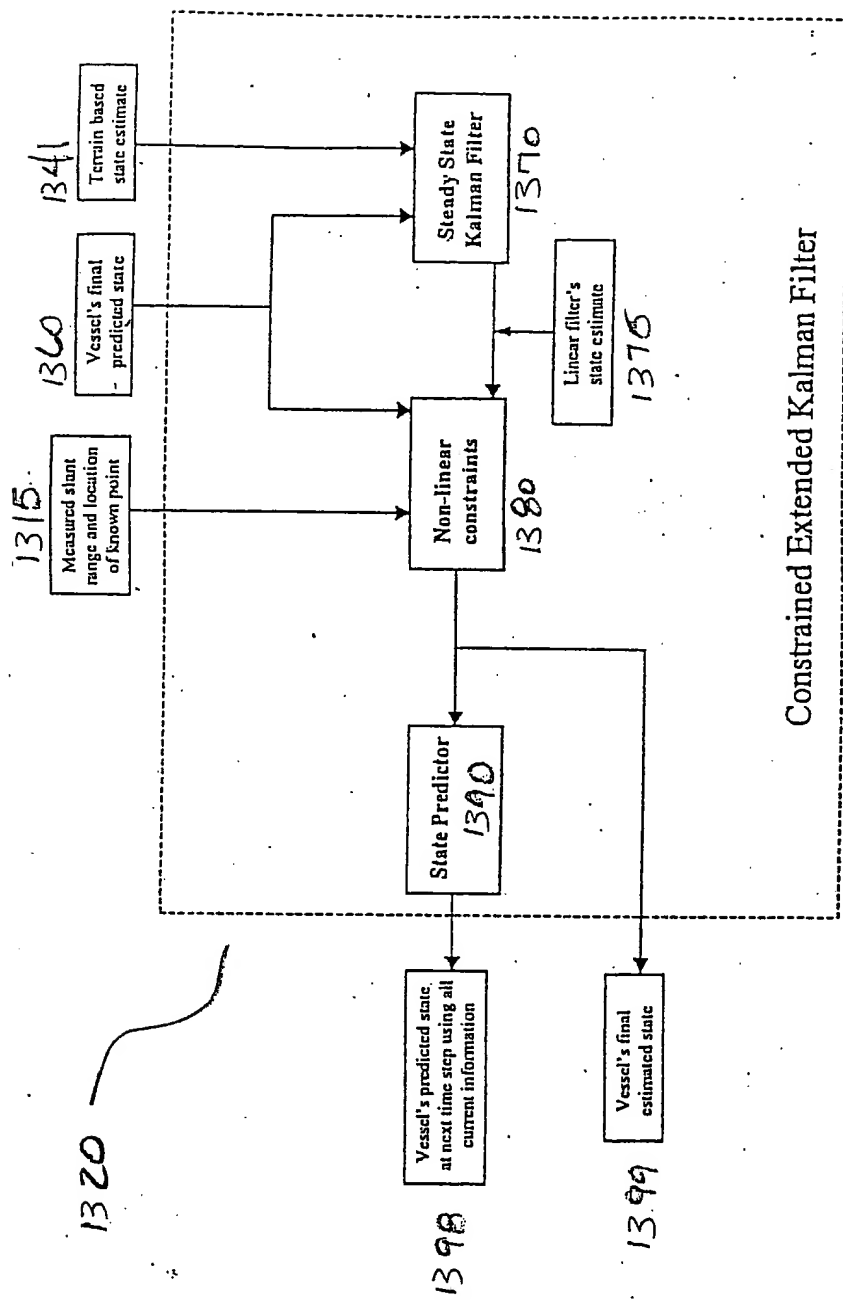


Input/Output diagram for the terrain matching module



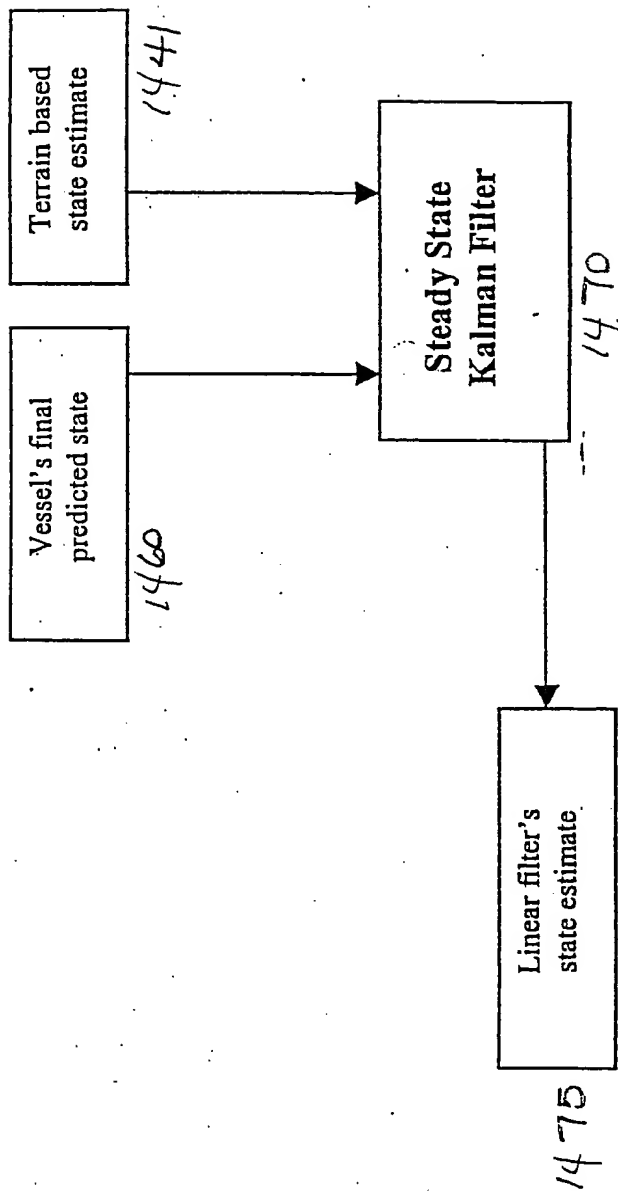
Input/Output diagram for the spatial based performance prediction module

Figure 12



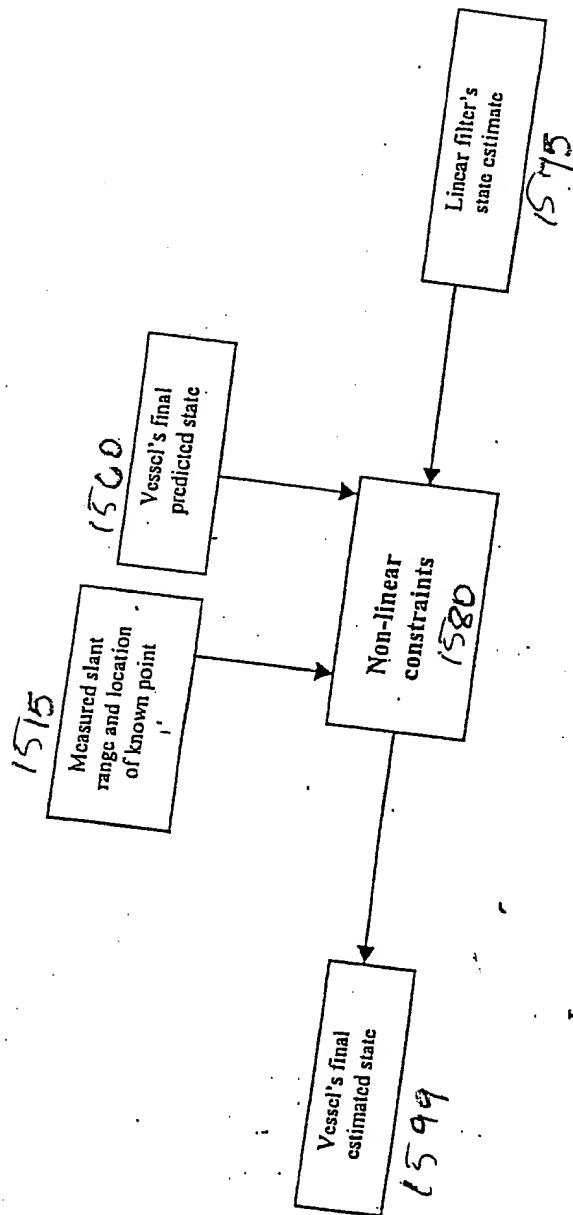
Block diagram of the constrained extended Kalman filter subsystem showing the signal flow

FIGURE 13



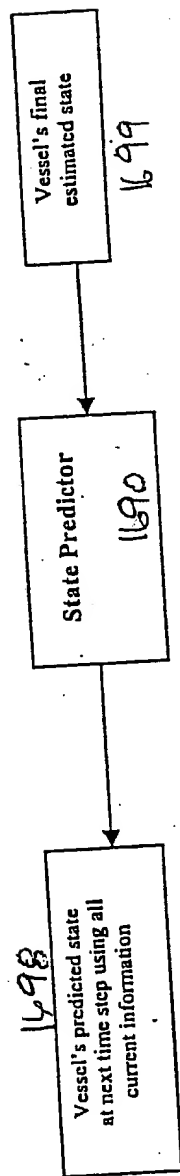
Input/Output diagram for the steady state Kalman filter

FIGURE 14



Input/Output diagram for the nonlinear constraint module

FIGURE 15



Input/Output diagram for the state predictor

FIGURE 16